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Bill Lucas

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A Five-Dimensional Model of Creativity and its Assessment in Schools

Bill Lucas

Centre for Real-World Learning, University of Winchester

ABSTRACT

Creativity is increasingly valued as an important outcome of schooling, frequently as part of so-called “21st century skills.” This article offers a model of creativity based on five Creative Habits of Mind (CHoM) and trialed with teachers in England by the Centre for Real-World Learning (CRL) at the University of Winchester. It explores the defining and tracking of creativity’s development in school students from a perspective of formative assessment. Two benefits are identified: (a) When teachers understand creativity they are, consequently, more effective in cultivating it in learners; (b) When students have a better understanding of what creativity is, they are better able to develop and to track the development of their own CHoM. Consequently, the Organisation for Economic Co-operation and Development has initiated a multicountry study stimulated by CRL’s approach. In Australia work to apply CRL’s thinking on the educational assessment of creative and critical thinking is underway.

Defining and Assessing Creativity in Schools

Creativity is a concept that experiences much interest today. As one illustration, creativity scholar Sir Ken Robinson’s Technology, Entertainment and Design (TED) Talk (Robinson, 2006) on the importance of creativity in schools has been watched more than thirty-one million times and creativity is explicitly mentioned as a desired outcome of national curricula across the world. The Scottish and Australian Curricula are just two examples from, respectively, the northern and southern hemispheres. In Scotland, “Creativity is very clearly at the heart of the philosophy of Curriculum for Excellence and is fundamental to the definition of what it means to be a *successful learner* in the Scottish education system” (Education Scotland, 2013; emphasis added). In Australia, there has been a focus on developing confident, critical, and creative thinkers for several years (Melbourne Declaration on Educational Goals, 2009). As well as being a topic of interest in its own right, creativity is also a key component of “21st century skills,” aspects of which are also referred to by some as “non-cognitive” or “soft skills” (Kautz, Heckman, Diris, Weel, & Borghans, 2014).

Currently there is no widely used definition of creativity in schools and no commonly accepted framework for assessing its development. Yet, if creativity is to be taken more seriously by teachers and educational policy makers we must be clearer about what it is. It will also help if there is an approach to assessing it that is both rigorous enough to be credible *and* user-friendly enough actually to be used by busy educators.

In this article we explore the implications for practice, policy, and research of adopting a definition of creativity, which features five Creative Habits of Mind and then of using this framing

as a means of tracking the development of creativity in students. Specifically we look at the role of formative assessment in promoting more effective teaching and learning of creativity.

Defining Creativity

It is widely agreed that creativity is complex, has many facets and occurs in all domains of life. Indeed, in a comprehensive meta-analysis of the creativity literature, Treffinger found 120 definitions of creativity in papers exploring the “traits,” “characteristics,” and other personal “attributes” that distinguished highly creative individuals from their peers (Treffinger, Young, Selby, & Shepardson, 2002). He clustered them into four broad categories—generating ideas, digging deeper into ideas, openness and courage to explore ideas, and listening to one’s “inner voice.”

The field of study, creativity research, is some 70 years old and was in many ways initiated by ground-breaking work by Guilford (1950). Today the concept of creativity is of particular relevance as it includes many of the ideas contained in the phrase “21st century skills”; indeed creativity, we suggest, is itself a core 21st century skill. Guilford’s idea that there are two kinds of thinking, convergent (coming up with one good idea) and divergent (generating multiple solutions) is an important contribution to thinking about creativity. Building on Guilford, Torrance (1970) took the idea of divergent thinking and developed four sub-categories—fluency, flexibility, originality, elaboration—, which he used in his test of creative thinking. In this, creativity is capable of being analyzed at an individual level in terms of dispositions or “traits” or “habits of mind” (Guilford, 1950; Resnick, 1999), but also strongly influenced by context and by social factors (Lave & Wenger, 1991). Creativity is considered multidimensional (Sternberg, 2005) and, potentially, one of three core elements of intelligence (Sternberg, 1996). There is a growing consensus that creativity is an important aspect of real-world intelligence encompassing attributes such as questioning assumptions, taking sensible risks, and reframing problems (Getzels & Jackson, 1962; Perkins, 1995; Sternberg, 1996). Specifically, Craft (2008) helpfully describes two fundamentally contrasting ways of viewing creativity (see Figure 1). Creativity can be an individual or collective phenomenon and can be viewed as domain-specific or domain-free.

In her exploration of different kinds of context, Craft builds on earlier thinking by Amabile (1996) who saw the need for both domain-specific skills as well as more generic creative thinking capability. Craft (1996) also developed the useful concept of “little c creativity,” the kind of ordinary creativity that we can all show across a range of domains. She contrasts little c creativity that we might expect all school students to show with the extraordinary creative efforts of the exceptional genius. Importantly for its

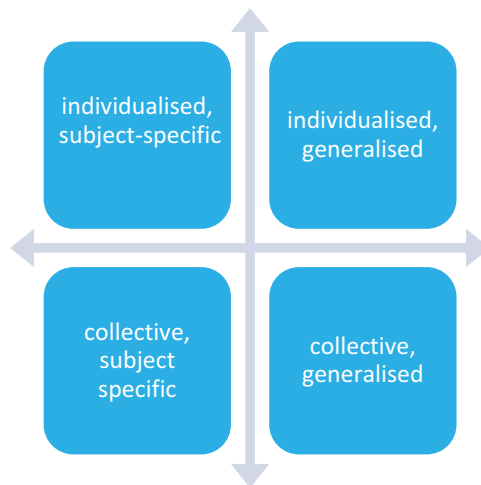


Figure 1. Four views of creativity (Craft, 2008).



Figure 2. CRL's five dimensional model of creative habits of mind.

role as a worthwhile endeavor at school, creativity is learnable (Lucas & Claxton, 2010; Csikszentmihalyi, 1996; Dweck, 2006; Perkins, 1995; Torrance, 1970). Just as creativity is learnable, it is also possible to assess its development in ways that are useful for both learner and teacher.

The importance of creativity for learning and at school is considerable. In schools it is positively associated with social and emotional factors (Robinson, 2001) and has been shown to improve wellbeing (Seligman & Csikszentmihalyi, 2000). Within schools there is indirect evidence that creative learning programs help learners to learn better (Office for Standards in Education, 2010), increase student achievement (Hattie, 2009), and improve student attendance (Cooper, Benton, & Sharp, 2011). Aspects of creativity, some key non-cognitive skills such as persistence and openness to experience, are positively associated with improved education and labor market outcomes (Kautz et al., 2014).

In most countries creativity is not a statutory element of the school curriculum even if it is mentioned at the macro level of a national curriculum as an aspiration. In England, an influential report by the National Advisory Committee on Creative and Cultural Education (National Advisory Committee on Creative and Cultural Education, 1999), led to an enhanced status of creativity in the curriculum evidenced by new funding for schools and new curriculum frameworks promoting creativity in its broadest sense.

Between 2002 and 2011 a major initiative, Creative Partnerships, led by Creativity, Culture, and Education and supported financially by the English government, significantly increased interest in cultivating creativity in schools and has left a well-analyzed library of useful studies (Thompson et al., n.d.). More specifically, for much of the last decade in England, secondary schools were required to develop Personal, Learning, and Thinking Skills (PLTS), a location for an explicit interest in creativity. One of six PLTS is being a "creative thinker." Creative thinkers are those who "generate ideas and explore possibilities, ask questions to extend their thinking, connect their own and others' ideas and experiences in inventive ways question their own and others' assumptions try out alternatives or new solutions and follow ideas through adapt ideas as circumstances change."¹ But while creativity may have achieved an enhanced status, it was still not discussed as a concept capable of being assessed in schools.

¹An archive version of this framework can be found at http://webarchive.nationalarchives.gov.uk/20110223175304/http://curriculum.qcda.gov.uk/uploads/PLTS_framework_tcm8-1811.pdf

Arriving at a Pragmatic, Research-Based Definition of Creativity for Use in Schools

In 2011 the Centre for Real-World Learning (CRL) undertook a review of creativity and an examination of the literature relating to the assessment of creativity in schools (Spencer, Lucas, & Claxton, 2012). CRL went on to develop a five-dimensional model of creativity, which was used in a small-scale intervention study in schools in England (Lucas, Claxton, & Spencer, 2013). To balance the inevitable tensions between rigor and usability, CRL developed a number of criteria, part scholarship and part pragmatic considerations, to guide work with schools. These were:

- (1) Identifying those dispositions or habits of mind at the core of creativity (Claxton, 2006; Feist, 2010; Kaufman & Sternberg, 2010);
- (2) Being as comprehensive in terms of existing research as possible (Spencer et al., 2012);
- (3) Achieving overall coherence but at the same time maintaining distinct sub-elements (Sternberg, 1996, 2005);
- (4) Clearly locating creativity in a broader social and contextual view of learning (Koestler, 1964; Lave & Wenger, 1991);
- (5) Focusing not just on fluidity of ideas—their development, combination, and re-combination—but also on being “disciplined” in the technical and craft aspects associated with the activity of creativity (Berger, 2003; Ericsson, Krampe, & Tesch-Römer, 1993).

Our Five Dimensional Model of Creativity

A particular challenge of working in schools is the subject-specific nature of the teaching and learning environment. To ensure that all teachers felt they could be part of any endeavor to cultivate and assess creativity in their students, the CRL research team adopted an idea from the cognitive sciences—Habits of Mind (HoM). HoM (also sometimes referred to as dispositions) are ways of thinking and acting, which people typically adopt when learning and living. Being creative today, we argue, just as being intelligent, requires us to think and act in certain ways:

Intelligence is the habit of persistently trying to understand things and make them function better. Intelligence is working to figure things out, varying strategies until a workable solution is found. . . . One’s intelligence is the sum of one’s habits of mind. (Resnick, 1999)

The idea that organizing curricula by subjects can be a barrier to the development of real understanding of the subject as it might be encountered in the real world had earlier been developed in mathematics (Cuoco, Goldenberg, & Mark, 1996) and in science (Calik & Coll, 2012). By reframing math, for example, in terms of HoM such as “pattern-sniffers,” “experimenters,” and “tinkerers” it becomes immediately easier to see what lies at the heart of this discipline. In the United States, Costa and Kallick (2002) have applied Resnick’s work to develop 16 HoM that describe what human beings do when they behave intelligently in the real world, habits that might, therefore, be worth learning at school. In the United Kingdom, Claxton’s approach to teaching and learning called “Building Learning Power” (BLP) identified 17 “learning dispositions” organized into four groups—resilience, resourcefulness, reflectiveness, and reciprocity (Claxton, 2002).

Our model has five core creative habits with each of them being composed of three sub-habits:

- (1) *Inquisitive*. Clearly creative individuals are good at uncovering and pursuing interesting and worthwhile questions in their creative domain.
 - Wondering and questioning—beyond simply being curious about things, questioning individuals pose concrete questions about things to help them think things through and develop new ideas.
 - Exploring and investigating—questioning things alone does not lead to creativity. Creative individuals act out their curiosity through exploration and follow up on their questions by actively going out, seeking, and finding out more.

- Challenging assumptions—a degree of appropriate skepticism is important; not taking things at face value without critical examination.
- (2) *Imaginative*. At the heart of a wide range of analyses of the creative personality is the ability to come up with imaginative solutions and possibilities.
 - Playing with possibilities—developing an idea involves manipulating it, trying it out, and improving it.
 - Making connections—the synthesizing process brings together a new amalgam of disparate things.
 - Using intuition—the use of intuition allows individuals to make new connections tacitly that would not necessarily materialize given analytical thinking alone.
- (3) *Persistent*. Creative individuals do not give up easily.
 - Sticking with difficulty—persistence in the form of tenacity is important, enabling an individual to get beyond familiar ideas and come up with new ones.
 - Daring to be different—creativity demands a certain level of self-confidence as a prerequisite for sensible risk-taking.
 - Tolerating uncertainty—being able to tolerate uncertainty is important when actions or even goals are not fully set out.
- (4) *Collaborative*. In today's world complex challenges—for example, unraveling DNA, understanding climate change—require creative collaboration. Creative individuals recognize the social dimension of the creative process.
 - Sharing the product—creative outputs matter, whether they are ideas or things and create impact beyond their creator.
 - Giving and receiving feedback—this is the propensity of wanting to contribute to the ideas of others, and to hear how one's own ideas might be improved.
 - Cooperating appropriately—the creative individual co-operates appropriately with others. This means working collaboratively as needed, not necessarily all the time.
- (5) *Disciplined*. As a counterbalance to the more intuitive side of creativity, there is a need for knowledge and craft in shaping the creative product and in developing expertise.
 - Developing techniques—skills may be established or novel but the creative individual will practice in order to improve.
 - Reflecting critically—once ideas have been generated, evaluation is important. Such “converging” requires decision-making skills.
 - Crafting and improving—taking pride in work, attending to details, correcting errors indicate people whose creative skill is of the highest order (Berger, 2003; Ericsson et al., 1993).

Our definition of creative habits of mind was arrived at after careful weighing up of the pros and cons of existing lists of creative dispositions (Spencer et al., 2012). Whereas most definitions of creativity include elements of being imaginative and inquisitive, we explicitly added three dimensions which are not so often included in:

Persistent—Given the complexity and challenges inherent in much creative acts (Koestler, 1964), being able to persist in the face of difficulty is essential.

Collaborative—While there has long been a socioconstructivist strand of thinking about learning (Vygotsky, 1978), with creativity we have tended to focus on individuals and not on groups. Yet creative advances in the fields of science, technology and management today almost always stress the social components (Amabile & Pillemer, 2012; Laudel, 2001).

Disciplined—The craft and disciplined practice aspects of creativity have always been part of any consideration of creativity, but the literature of expertise suggested to us that it should receive greater emphasis (Ericsson, 2006).

Assessing Creativity in Schools

There are some particular challenges when assessing creativity in schools, especially with students in the age 11–16 range. The first is the way that lessons are organized by subjects and the consequent difficulty this poses for interdisciplinary work. The second is the historic association, which exists between creativity and the arts (as opposed to, say, with the sciences where it is equally valid). The third is the accountability structures of most countries, which privilege certain kinds of academic success (and the assessment of its progress) in high status subjects, typically English, Mathematics, and Science. Nevertheless the potential advantages of assessing creativity in schools include:

- Indicating that creative-mindedness is taken seriously as an important aspect of the formal curriculum in schools;
- Inspiring the development of curricula and teaching activities that foster creativity;
- Helping teachers to be more precise in their understanding and development of creativity;
- Providing formative feedback to students to enable them to develop their creativity;
- Raising the status of creativity and building a consensus view of its component elements.

Notwithstanding the difficulties, attempts to assess creativity have a rich history (Beattie, 2000; Hocevar, 1981; Treffinger et al., 2002). Our review found a variety of assessment instruments for the development of specific traits linked to creativity (Beattie, 2000; Hocevar, 1981) including the use of descriptive rubrics supported by examples (Lindström, 2006), assessment by peers, assessment using portfolios, assessment using mixed methods (Treffinger et al., 2002), psychometric approaches (Guilford, 1950; Torrance, 1970), and various forms of self-assessment (Deakin-Crick, Sebba, Harlen, Guoxing, & Lawson, 2005). In an attempt to categorize these assessments, Plucker and Makel (2010) suggest that tests for creativity fall into a number of categories:

- Psychometric tests for divergent thinking;
- Behavior or personality tests of past behavior or personality characteristics;
- Personality tests of personality correlates of creative behavior;
- Activity checklists of experience associated with creative production;
- Scales assessing attitudes toward important aspects of creativity or divergent thinking;
- Advanced techniques for the assessment of creative products;
- Expert judges to assess level of creativity in a product or response;
- Consumer product design models to assess creative design of product.

Yet we found no examples of widely used and current methods of assessing creativity in schools, although subsequently we have begun to work with the state of Victoria in Australia where a suite of online assessment tools have been developed and are currently being trialed.² Within the capability “critical and creative thinking” schools are exploring the ways in which creative capabilities (similar to the creative habits of mind in our model) can be embedded within different subjects, explicitly taught and assessed. The Victorian Curriculum and Assessment Authority is the only Australian state to have attempted to map the progression of creative capability to show expected levels of capability across the 10 years of compulsory schooling.³ Our work is exploring how specific pedagogic approaches can be linked to increased teacher understanding of face to face and online assessment activities to assess progress within critical and creative thinking.

While elements of Plucker’s and Makel’s categories can be seen in some educational assessment—activity checklists, scales indicating attitudes and expert judgement by teachers and others, for example—there has, to date, been no holistic framework against which any assessment activity can

²See <http://www.insight.vic.edu.au/assessment-tools/cct> for early thinking on this kind of assessment.

³<http://victoriancurriculum.vcaa.vic.edu.au/critical-and-creative-thinking/introduction/learning-in-critical-and-creative-thinking>

be carried out. In any assessment activity in schools there is a more fundamental question that needs to be asked. We need to be clear as to why it is being done, for the ends will largely determine the means.

There are two distinct and sometimes overlapping purposes of assessment in education: one is to provide certification of achievement; the other is to facilitate learning (Boud & Falchikov, 2006). Assessment can thus be formative, helping students and teachers improve, or summative, enabling measurement of capability and comparison. Approaches to formative assessment have been shaped significantly by approaches known as Assessment for Learning (AfL). AfL uses a range of feedback methods to help learners to progress more effectively (Black & Wiliam, 1998). Wiliam (2006) argues that there are five core strategies in AfL:

- (1) Clarifying and understanding learning intentions and criteria for success;
- (2) Engineering effective classroom discussions, questions, and tasks that elicit evidence of learning;
- (3) Providing feedback that moves learners forward;
- (4) Activating students as instructional resources for each other;
- (5) Activating students as owners of their own learning.

Leahy and William's address to the American Educational Research Association conference in 2009 similarly suggested that there is a strong case for the use of formative assessment to improve learner outcomes. They observed that over the past 25 years, "at least 15 substantial reviews of research, synthesizing several thousand research studies, have documented the significant positive impact of classroom assessment practices on students" (Leahy & Wiliam, 2009, p. 2).

At a practical level assessing something such as creativity summatively could give rise to reductionist ridicule as we have observed elsewhere in a review of wider skills for the National Endowment for Science Technology and the Arts in the United Kingdom: "The idea that young people could come out of school labeled as a *level 7 imager* or *grade C collaborator* is horrific—yet clearly some kind of evaluation of success is necessary" (Lucas & Claxton, 2009, p. 25). Blamires and Peterson (2014) offer a useful summary of the issues with regard to the assessment of progress in creativity in schools, which concludes both that it is possible and that AfL approaches may be particularly helpful. In our own study design we tried explicitly to avoid the use of over-simplified summative comments and to explore the benefits of engaging students and teachers in a formative dialogue about the development of creative habits of mind.

The Study

Twelve schools in England were identified, through their engagement with the organization Creative Partnerships,⁴ as having a genuine interest in and some experience of developing students' creativity. CRL's five-dimensional model of creativity, initially presented in the form of a table and, after interaction with teachers re-presented as a circle, was used to underpin a number of professional learning sessions. Once its five components were understood, teachers shared current practices and explored new methods by which such creative habits of mind might be developed. The research team also suggested approaches to pedagogy, which might be helpful.

Possible approaches to the assessment of creativity were discussed and, using an Appreciative Inquiry approach (Cooperrider & Whitney, 2005), methods, which had been used with some degree of success, were explored. After an exploration of the advantages and disadvantages of formative and summative approaches to assessment, teachers strongly favored an approach that encouraged a formative approach to assessment tool design and that put the emphasis on the more structured development of creativity in learners.

⁴<http://creative-partnerships.com/>

Two field trials were carried out exploring two of our five Creative Habits of Mind in a total of 12 schools. The first was a proof of concept that was designed to show how easy or difficult it was for teachers to map a student onto the framework, how easy or difficult it was for teachers to decide on, and gather, suitable decision-making evidence/data, what the sticking points were, and how the process could be improved. The focus of the first trial was on just one of the habits—“inquisitive.” The second trial focused on self-assessment by individual learners. It was designed to ascertain the extent to which students perceived that they were able to self-assess “imagination” and whether students were able to provide sufficient supporting evidence.

For the first trial, the assessment tool that is depicted in [Figure 3](#) was designed so that it could potentially describe three dimensions of “inquisitive”:

- Strength—the level of independence demonstrated by students in terms of their need for teacher prompts or scaffolding, or their need for favorable conditions;
- Breadth—the tendency of students to exercise creative dispositions in new contexts, or in a new domain;
- Depth—the level of sophistication of disposition application and the extent to which application of dispositions was appropriate to the occasion.

In the first trial, teachers at six schools (3 primary and 3 secondary schools) were asked to focus on 6 to 12 students in their class and attempt to map each student’s profile onto a copy of the reporting tool at a single moment in time by shading in the appropriate “strength,” “breadth,” and “depth” (Lucas et al., 2013). While teachers found the 15 sub-habits useful, even being asked to focus on three related to “inquisitive” meant 12 potential “fields” to consider for each student when factoring in progression according to strength, breadth, and depth. This was considered burdensome by some of the teachers.

For the second trial teachers at 11 schools (5 primary and 6 secondary schools) used a modified tool that is depicted in [Figure 4](#) for students to self-assess within one of their classes for a period of 4–6 weeks. Teachers implemented this project in a variety of ways, generally following the guidelines given by the project team. That is, most teachers showed an online presentation we had prepared that explained the concept of creativity, why its assessment would be beneficial, and how it could be used in their classes. Many students were given the opportunity to develop their own definitions of imagination, through various means including

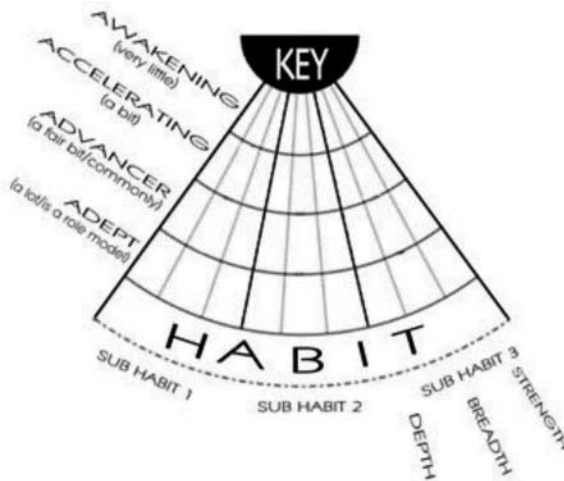


Figure 3. Field trial 1 assessment tool.

Name: _____ Year group: _____

Not at all like me A little like me Quite a bit like me Very much like me

Your evidence and notes (don't forget the date)...

Being imaginative means:
 ...trying things out. It means combining ideas from different places. It means being able to carry on even when you can't fully explain your reasoning.

If this is 'very much like me' then:
 I can show that I can keep my mind open to ideas and that I don't narrow down my ideas too quickly. I can show that I look for links between facts and ideas. I use my own intuitions to come up with ideas. I can do these things without being prompted. I am confident about doing these things.

Figure 4. Field trial 2 assessment tool.

discussion, mind mapping, and blogging. Teachers held two to three class sessions with the class prompting them to self-assess using the pre-formatted student-reporting tool. They were asked to consider, from recent examples, how imaginative they had been in comparison with the exemplar statement on the tool. Specifically they were invited to comment on the degree to which the behavior described was “like me” (not at all, a little, quite, very much). Students were encouraged to gather and share evidence to justify their judgments. It was not within the scope of the study to analyze the validity of these ratings, but they were clearly well distributed across the range of self-reported expertise within the specific creative habit.

Views of teachers and students in both field trials were gathered using questionnaires and in structured conversations at professional learning events. On the evidence these views, the concept of such an assessment framework for creativity in schools is seen as valuable. The framework served as a prompt to teachers to enable them to establish and maintain focus and as an effective formative assessment tool to track students' creativity. The language of the tool provided students with a new vernacular with which to describe their behavior and monitor different dimensions of their learning. More detailed analysis of the trials and their participants' views are examined elsewhere in detail (Lucas et al., 2013).

In summary, the field trials showed that it is operationally possible for teachers and students to track the development of students' creativity with the five habits exhibiting face validity. Our conception of creativity fitted teachers' understandings of the creative dispositions that they would wish students to develop. Benefits of using the assessment tool are broad and relate to:

- A boost to the status of creativity;
- The potentially powerful use of feedback by students to support them in harnessing more of their creativity;
- The additional focus and precision in classroom activities, helping teachers to think specifically how they could cultivate the full range of creative dispositions;
- A balance of simplicity and rigor, spanning the gap between theory and practice;
- A way of structuring conversations within a community of practitioners interested in teaching and assessing creativity;
- A way of organizing the collecting, tagging, and exchanging of teaching and learning materials using the tools' structure.

Conclusions

Although creativity is becoming increasingly important today, the subject is broad, vague, and daunting for many teachers. In a small-scale trial we have shown that it is operationally possible to define creativity in ways that teachers find valid and useful. In two field trials we have demonstrated that it is at least technically possible for teachers and students to begin the complex task of assessing the development of the creative habits of mind, which are part of our five-dimensional model of creativity. Clear limitations to our study include, but are by no means confined to: the age of students, the willingness of teachers to participate, the nature of school curricula, the distracting power of external accountability regimes and, of course, the reliability and validity of the assessment tools and processes.

But this study has also highlighted some real opportunities for advancing our understanding of the ways in which measurement can be applied in schools to interdisciplinary fields such as creativity. One area that is already proving promising is engineering (Lucas & Hanson, 2014), where pedagogy and innovation in a combination of curriculum development and approaches to assessment are currently being explored in a prototyping project in England. Where the field of school is broad, interdisciplinary, and multifaceted, we hypothesize that the rigor required to develop reliable, valid assessment materials may also help to deepen understanding and help to focus more precisely on delivering desired learning outcomes.

There are implications for practice, policy, and research. In terms of practice many schools are beginning to experiment with the five-dimensional model. Appendix 1 shows how one school in Sydney, Australia, has used the model to structure its entire curriculum, incorporating key features of language, pedagogy, and desirable thinking routines (Ritchhart, 2011). In terms of policy, the State of Victoria is working with the author to develop and validate online assessment materials as part as its broader implementation of a capability-led curriculum. It has explicitly set out to show on an empirical level how critical and creative thinking is both learnable and its development capable of being measured. With regard to research, the Organisation for Economic Co-operation and Development (OECD) is using CRL's five-dimensional model as its initial frame for taking stock of how countries or institutions explicitly assess creative and critical thinking skills in eight countries in 2015 to 2016.⁵ The OECD will further develop and prototype assessment tools, refine the language with which teachers and students discuss their creativity, and create fora for knowledge exchange on practices around the fostering and assessment of creative and critical thinking skills in schools. CRL's model also invites other research endeavors in the fields of pedagogy, creativity, school leadership, and, of course, educational assessment.

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⁵See <http://www.oecd.org/edu/ceri/assessingprogressionincreativeandcriticalthinkingskillsineducation.htm>

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Appendix 1: Rooty Hill High School's Creativity Wheel

